



PTO/SB/08a (08-03)

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SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Complete if Known

Application Number	10/665,934
Filing Date	09/19/2003
First Named Inventor	Liu, et al.
Art Unit	2812
Examiner Name	Unassigned
Attorney Docket Number	7989/ETCH/SILICON/JB1

Sheet 1 of 3

U.S. PATENT DOCUMENTS

Examiner Initials *	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number - Kind Code ² (if known)			
BK	1	US- 8,762,130	07/13/2004	LAAKSONEN, ET AL.	
BK		US- 8,625,497	09/23/2003	FAIRBAIRN, ET AL.	
BK		US- 8,606,738	08/12/2003	BELL, ET AL.	
BK		US- 6,501,555	12/31/2002	GHANDCHARI, ET AL.	
BK		US- 8,479,309	11/12/2002	WRIGHT	
BK		US- 6,455,437	09/24/2002	DAVIDOW, ET AL.	
BK		US- 6,413,867	07/02/2002	SARFATY, ET AL.	
BK		US- 6,368,975	04/09/2002	BALASUBRAMHANYA, ET AL.	
BK		US- 6,161,054	12/12/2000	ROSENTHAL, ET AL.	
BK		US- 6,124,212	09/26/2000	FAN, ET AL.	
BK		US- 5,948,203	09/07/1999	WANG	
BK		US- 5,798,529	08/25/1998	WAGNER	
BK		US- 4,787,496	08/30/1988	HIEBER	
BK		US- 2003/0092281	05/15/2003	RAMACHANDRAMURTHY, ET AL.	
BK		US- 2003/0000922	01/02/2003	SUBRAMANIAN, ET AL.	
BK		US- 2003/0045098	03/06/2003	VERHAVERBEKE, ET AL.	
BK		US- 2002/0171828	11/21/2002	COHEN, ET AL.	
BK		US- 2002/0160628	10/31/2002	OKOROANYANWU, ET AL.	
BK		US- 2002/0072003	06/13/2002	BRILL, ET AL.	
		US- 6,450,664 (Withdrawn)	11/21/2000	SU	
BK		US- 5,983,329	10/05/1999	CONRAD, ET AL.	
BK		US- 2002/0155629	10/24/2002	FAIRBAIRN, ET AL.	
BK		US- 6,454,417 B1	09/24/2002	TAKAMOTO, ET AL.	
BK		US- 6,245,581	06/12/2001	BONSER, ET AL.	
BK		US- 6,225,639	05/01/2001	ADAMS, ET AL.	
BK		US- 6,178,239	01/23/2001	KISHINSKY, ET AL.	
BK		US- 6,175,417 B1	01/16/2001	DO, ET AL.	
BK		US- 6,148,239	11/14/2000	FUNK, ET AL.	
BK		US- 6,143,081	11/07/2000	SHINRIKI, ET AL.	
BK		US- 6,054,710	04/25/2000	BRUGGEMAN	
BK		US- 6,033,814	03/07/2000	BURDORF, ET AL.	
BK		US- 6,027,842	02/22/2000	AUSSCHNITT, ET AL.	
BK		US- 6,007,675	12/28/1999	TOSHIMA	
BK		US- 6,033,814	03/07/2000	BURDORF, ET AL.	
BK		US- 6,004,706	12/21/1999	AUSSCHNITT, ET AL.	
BK		US- 6,001,699	12/14/1999	NGUYEN, ET AL.	
BK		US- 5,980,766	11/09/1999	FLAMM, ET AL.	
BK		US- 5,963,329	10/05/1999	CONRAD, ET AL.	

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**SUPPLEMENTAL INFORMATION
DISCLOSURE STATEMENT BY
APPLICANT**

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BN		US- 5,944,940	08/31/1999	TOSHIMA	
BN		US- 5,926,890	07/20/1999	TOPRAC, ET AL.	
BN		US- 5,913,102	06/15/1999	YANG	
BN		US- 5,653,894	08/05/1997	IBBOTSEN, ET AL.	
BN		US- 5,452,521	09/26/1995	NIEWMIERZYCKI	
BN		US- 5,171,393	12/15/1992	MOFFAT	
BN		US- 5,109,430	04/28/1992	NISHIHARA, ET AL.	
BN		US- 4,911,103	03/27/1990	DAVIS, ET AL.	
BN		US- 4,447,731	05/08/1984	KUNI, ET AL.	

FOREIGN PATENT DOCUMENTS

Examiner Initials *	Cite No. ¹	Foreign Patent Document Country Code ³ - Number ⁴ - Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
BN		WO 01/09934 A1	02/08/2001	Williams, et al.		
BN		WO 02/37186 A1	05/10/2002	Brill, et al.		
BN		WO 03/003447 A2	01/09/2003	Rangarajan, et al.		
BN		EP 1 083 424	03/14/2001	Hunter, et al.		
BN		EP 1 079 428	02/28/2001	Adams, et al.		
BN		WO 02/09170 A2	01/31/2002	Drake, et al.		
BN		WO 01/84382 A1	11/08/2001	Lakkapragada, et al.		
BN		EP 0 727 715	08/12/1996	AT&T Corp.		
BN		JP 61 290312	12/20/1986	Hitachi Ltd.		

NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
BN		YANG, ET AL., "Line-Profile and Critical Dimension Measurements Using a Normal Incidence Optical Metrology System," Proceedings of SPIE Vol. 4689, March 2002.	
BN		KOTA, ET AL., "Advanced Process Control for Polysilicon Gate Etching Using Integrated Optical CD Metrology", Proceedings of SPIE, Vol. 5044 (2003) pp. 90-96.	

Examiner Signature

Brown Kelsall

Date Considered

2/12/2005

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¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

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BU		Anthony J. Toprac, "AMD's Advanced Process Control of Poly-gate Critical Dimension", SPIE Conference on Process, Equipment and Materials Control in Integrated Circuit Manufacturing, September 1999, Santa Clara, CA. SPIE, Vol. 3882	
BU		Lee, M.E., "Analysis of Reflectometry and Ellipsometry Data from Patterned Structures", Characterization and Metrology for ULSI Technology: 1998 International Conference, ed. D.G. Seiler, et al., 1998, pp. 331-335.	
BU		McIntosh, J.M., et al., "Approach to CD SEM Metrology Utilizing the Full Waveform Signal", Proceedings of the SPIE, vol. 3332, pp. 51-60, February 23, 1998	
BU		Ausschnit, Christopher P., et al., "Seeing the Forest for the Trees: A New Approach to CD Control," Ed. Bhanwar Singh, Proceeding of the SPIE, vol. 3332, pp. 212-220, February 23-25, 1998.	
BU		Moharam, M.G., et al., "Stable Implementation of the Rigorous Coupled-Wave Analysis for Surface-Relief Gratings: Enhanced Transmittance Matrix Approach," Journal of the Optical Society of America, vol. 12, no. 5, pp. 1077-1086, May 1995	
BU		Chateau, Nicolas, "Algorithm for the Rigorous Coupled-Wave Analysis of Grating Diffusion," Journal of the Optical Society of America, vol. 11, no. 4, pp 1321-1331, April 1994	
BU		G.P. Kotta, et al., "Integrated CD Metrolog for Poly Si Etching", Lam Research Corporation, Plasma Etch Users Group Meeting, January 17, 2002.	
BU		Raymond, Christopher J., "Angle-Resolved Scatterometry of Semiconductor Manufacturing", Microlithography World, Winter 2000, pp. 18-23	

Examiner Signature	Brown Kekede	Date Considered	2/12/2005
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